



Serial No. 09/911,851

Docket No. CIT/K-0152

Amtd. Dated October 13, 2004

Reply to Office Action of July 13, 2004

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A driving circuit for a display device comprising:
  - a DC-DC converter provided inside one chip, for converting an external voltage input depending on a timing control signal and providing a controlled DC voltage;
  - an interface unit provided inside the chip, for interface with parts outside the chip;
  - a memory provided inside the chip, for storing display information transmitted through the interface unit;
  - a data processor provided inside the chip, for providing a display data to a display panel of the display device using the display information stored in the memory and the controlled DC voltage output from the DC-DC converter;
  - a scan processor provided inside the chip, for outputting scan data to the display panel using the display information and the controlled DC voltage output from the DC-DC converter; ~~and~~
  - a timing control unit provided inside the chip, for providing the timing control signal to the DC-DC converter, the interface unit, the memory, the data processor, and the scan processor; and

a power peripheral unit provided outside the chip, for controlling input and output voltages of the DC-DC converter, preventing a backward current from occurring during the DC-DC conversion, and maintaining the input DC voltage for a predetermined time, wherein the power peripheral unit comprises:

an input terminal providing an applying external voltage to the DC-DC converter;

an output terminal for outputting the controlled DC voltage output from the DC-DC converter to the outside of the chip;

a first capacitor connected with the input terminal in parallel to reduce fluctuation of the input voltage;

a second capacitor connected with the output terminal in parallel to reduce fluctuation of the controlled DC voltage;

an inductor connected in series between the input terminal and the output terminal, for maintaining the external voltage applied to the DC-DC converter for a predetermined time; and

a diode connected in series between the input terminal and the output terminal, for reducing a backward current from occurring.

2-4. (Canceled)

5. (Currently Amended) ~~The A system for driving circuit for a display device, as claimed in claim 1, wherein the DC-DC converter includes comprising:~~

an integrated circuit (IC), wherein the IC comprises:

a DC-DC converter for converting a supplied voltage based on a timing control signal and providing a controlled DC voltage;

a timing control unit for providing the timing control signal to the DC-DC converter;

a mode control unit outputting a voltage control signal in response to the timing control signal from the timing control unit;

an impedance generating unit outputting an impedance value changed depending on the voltage control signal output from the mode control unit;

a resistor connected with an output terminal of the DC-DC converter in parallel and with an output terminal of the impedance generating unit in series; and

a voltage control unit receiving a feedback value of the controlled DC voltage distributed by the impedance value output from the impedance generating unit and a value of the resistor, and then outputting a DC voltage controlled according to the feedback voltage.

6. (Currently Amended) The ~~driving circuit for a display device~~system as claimed in claim 5, wherein the impedance generating unit and the resistor can be installed not inside the ~~chip IC~~ but outside the ~~chip~~IC.

7-20. (Cancelled)

21. (Previously Presented) The driving circuit for a display device as claimed in claim 1, wherein the DC-DC converter controls the external voltage by constructing a feedback circuit that depends on the timing control signal.

22. (Previously Presented) The driving circuit for a display device as claimed in claim 1, wherein the DC-DC converter comprises a control unit that controls an output voltage of the DC-DC converter provided inside the one chip by using a feedback circuit responsive to the timing control signal.

23. (Currently Amended) ~~The A system for driving circuit for a display device as claimed in claim 1, comprising an integrated circuit (IC), wherein the IC comprises:~~

a DC-DC converter for converting an external voltage input according to a timing control signal and providing a controlled DC voltage, wherein the controlled DC voltage is changed by the DC-DC converter ~~inside the chip~~ by controlling a load condition of a feedback

signal from the controlled DC voltage to the DC-DC converter, and wherein the DC-DC converter comprises:

a voltage control unit having an input terminal that receives the external voltage, an output terminal, and a feedback terminal; and

a feedback circuit to couple the output terminal and the feedback terminal, to control the feedback signal according to the timing control signal.

24. (Canceled)

25. (Previously Presented) The driving circuit for a display device as claimed in claim 1, wherein the DC-DC converter comprises a voltage control unit that receives a feedback value of the controlled DC voltage distributed by an impedance value and outputs a DC voltage controlled according to the feedback value.

26. (Currently Amended) ~~The A system for driving circuit for a display device as claimed in claim 1,~~ comprising a DC-DC converter for converting a supplied voltage based on a timing control signal and outputting a controlled DC voltage, wherein the DC-DC converter comprises:

a voltage control unit having an input terminal that receives the external-supplied voltage, an output terminal and a feedback terminal; and

a mode control unit that receives the timing control signal, wherein the controlled DC voltage can be generated by the DC-DC converter for a plurality of modes according to a feedback signal received at the feedback terminal that corresponds to a voltage control signal output by the mode control ~~signal~~unit.

27. (Previously Presented) The driving circuit for a display device as claimed in claim 1, wherein the controlled DC voltage level is changed by the DC-DC converter provided inside the chip.

28. (Currently Amended) The driving circuit for a display device as claimed in claim 21, wherein the output voltage of the DC-DC converter is changed by controlling a voltage control signal and a signal of the DC-DC converter.

29. (Previously Presented) A driving circuit for a display device comprising:  
DC-DC converter means provided inside one chip, for controlling an external voltage input depending on a timing control signal and providing a controlled DC voltage;  
memory means provided inside the chip, for storing display information;  
data processing means provided inside the chip, for providing a display data to a display panel of the display device using the display information stored in the memory means and the controlled DC voltage output from the DC-DC converter means;

scan processing means provided inside the chip, for outputting scan data to the display panel using the display information and the controlled DC voltage output from the DC-DC converter means; and

timing means provided inside the chip, for providing the timing control signal to the DC-DC converter means, the memory means, the data processing means, and the scan processing means, wherein the DC-DC converter means comprises,

mode control means for outputting a voltage control signal in response to the timing control signal from the timing means,

resistance means coupled to an output terminal of the DC-DC converter for distributing the controlled DC voltage, and

voltage control means for receiving a feedback voltage of the controlled DC voltage distributed by the resistance means responsive to the voltage control signal of the mode control means, and then outputting the DC voltage controlled according to the feedback voltage.

30. (New) The system of claim 5, further comprising an external power source to be coupled to the IC, for controlling for supplying the supplied voltage.

31. (New) The system of claim 23, further comprising a power peripheral unit to be electrically connected to the IC, for providing the external voltage input to the DC-DC converter.

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32. (New) The system of claim 26, further comprising a peripheral voltage supply unit to provide the supplied voltage to the DC-DC converter.

33. (New) The system of claim 32, wherein the peripheral voltage supply unit controls input and output voltages of the DC-DC converter, prevents a backward current from occurring during DC-DC conversion, and maintains the input DC voltage for a predetermined time.